

DATE: February 7, 1992

TO: William Beal

FROM: David O'Brien

SUBJECT: Analytical Data Review of Natex, Gulf South Environmental Laboratory
Sample Delivery Group 9153, Episodes HWH, HWJ, HWZ, and HXR
Olin - McIntosh
Domestic Well Samples
File 90B449C-3D

The QA/QC information submitted by Gulf South Environmental Laboratory (GSELI) to support the quality of the analytical results for 11 domestic well samples, 4 trip blanks, and 1 field blank collected November 18 through November 21, and December 2, 1991, has been reviewed. GSELI provided analytical results for Contract Laboratory Program (CLP) Target Compound List (TCL) volatiles, Target Analyte List (TAL) mercury, and conventional parameters chloride (method 9252), sulfate (method 9038), total suspended solids (TSS) (method 160.2), and total organic carbon (TOC) (method 415.1); as laboratory sample delivery group 9153, in episodes HWH/01-05, HWJ/04-09, HWZ/01-02, and HXR/01-05.

The QA/QC information consisted of all TCL and TAL forms and the raw data necessary for CLP review, as well as all raw data and QA/QC information necessary for review of the conventional parameters section. Volatiles analysis was performed in a manner consistent with the Special Analytical Services (SAS) section of the CLP, using a 25 ml sample size instead of the routine CLP specified 5 ml sample size. The purpose of using this SAS method was to reduce the sample contract required detection limits (CRQL) to one-fifth the routine CLP detection limits for all volatile analytes (2 µg/L rather than 10 µg/L). Initial calibration standards were analyzed at 2, 4, 10, 20, and 40 µg/L (one-fifth the 3/90 CLP concentrations), and the 10 µg/L standard was used as the continuing calibration standard. These two procedural changes (25 ml purge volume rather than 5 ml, and calibration standards 5 times lower than routine CLP) are basic components of all low concentration volatile organic methods. Volatile analytes were reviewed by "National Functional Guidelines For Organic Data Review", dated 3/90; and mercury was reviewed by "Functional Guidelines for Evaluating Inorganics Analysis" dated 7/88. The conventional parameters section was reviewed for compliance with the QA/QC requirements of methods used for analysis.

In the volatile analytical fraction, detected analytes are reported from the first analysis in which the concentration of the analyte falls within the instrument calibration range. Those reported analytes with concentrations below this range are qualified estimated concentration "J".

Three trip blanks were not recorded on the chain-of-custody forms.

Laboratory detected analytes for the CLP portion of this SDG, with appropriate Functional Guidelines data qualifiers, are reported in the attached table. Unqualified data are suitable for use. Qualified data are suitable for use with the limitations indicated in this report. Rejected data are unsuitable for use and the presence or absence of such analytes cannot be determined (there was no rejected data for this SDG). Items which affect the accuracy and precision of the levels of detected analytes are reported in the following sections.

VOLATILES

- 1). Styrene and 2-butanone were found in one method blank. The analytes were not found in any of the samples.
- 2). Sample detects reported in this section were the solvents methylene chloride, acetone, carbon disulfide, chloroform, and chlorobenzene. Methylene chloride and acetone are common laboratory contaminants. Carbon disulfide is a natural product associated with the process of decay, and a highly volatile, diffusive laboratory solvent.
- 2). Methylene chloride was found in all method blanks and all trip blanks. The maximum reported concentration was 6 $\mu\text{g/L}$.
- 3). Acetone was found in 2 of the 4 trip blanks. The maximum reported concentration was 14 $\mu\text{g/L}$.
- 4). Carbon disulfide was found in one trip blank. The reported concentration was 1 $\mu\text{g/L}$.
- 5). All reported sample values for methylene chloride, acetone, and carbon disulfide were qualified undetected "U" at either the listed value or the sample reporting limit by the following Functional Guidelines directives:
 - a). For common laboratory contaminants, no positive sample results should be reported unless the concentration of the compound in the sample exceeds 10 times the concentration of the compound in any blank associated with the samples.
 - b). For other blank contaminants, no positive sample results should be reported unless the concentration of the compound in the sample exceeds 5 times the concentration of the compound in any blank associated with the samples.

February 7, 1992
WAB - Olin-9153
Page 3

6). Chlorobenzene in sample DW-20 is qualified estimated concentration "J". Note : the use of chlorobenzene- d_5 as an internal standard in all samples provides a possible explanation for the presence of chlorobenzene in this sample. Chlorobenzene- d_5 contains trace levels of chlorobenzene. The estimated concentration of chlorobenzene in the sample ($0.2 \mu\text{g/L}$) is one-tenth the reduced sample CRQL. Analyte identity at extremely low levels (one-tenth the CRQL) is somewhat erratic due to the very low signal intensity.

7). Relative response factors for ketones (acetone, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone) frequently exceeded percent difference requirements (30% for initial and 25% for continuing). Average relative response factor minimum was not met by 2-hexanone and one of the initial response factors for 4-methyl-2-pentanone. Based on professional judgement, qualification of these analytes in samples is not necessary. Ketones are often observed to give poor and variable response.

8). Field duplicate samples provide a measure of combined field and laboratory precision. There are no Functional Guidelines criteria for evaluation of field duplicates. Two sets of field duplicates were included in this sample delivery group. The laboratory reported detects (methylene chloride and acetone) were qualified by data validation as non-detects.

10). The tentatively identified compound (TIC) trichlorofluoromethane listed in sample DW-21 is qualified undetected "U". The reported concentration ($2 \mu\text{g/L}$) was less than five times the concentration reported in one trip blank ($2 \mu\text{g/L}$). Trichlorofluoromethane (Freon II) is a common refrigerant.

TAL MERCURY

1). Mercury was found in one sample (DW-40) from this SDG. The reported concentration was $0.37 \mu\text{g/L}$.

2). The raw data and QA/QC results indicate no problems with the results reported for this analytical fraction.

CONVENTIONAL PARAMETERS

1). The raw data and QA/QC results indicate no problems with the results reported for these analytical fractions.

3 2 1240

OLIN - DOMESTIC WELLS

VOA ANALYTES/ MERCURY

SDG 9153

(results = ug/L)

VALIDATED RESULTS

	SAMPLE ID	DW-26	DW-40	DW-16	DW-20	DW-22	D/DW22	DW-23	DW-21	DW-17	FB-01	DW231	D/DW231
LAB	SAMPLE ID	NWNO1	NWNO2	NWNO3	NWNO4	NWJO5	NWJO6	NWJO7	NWJO8	NWZ01	NWZ02	NXRO1	NXRO2
VOA ANALYTES													
METHYLENE CHLORIDE		2 U	2 U	2 U	2 U	2 U	2 U	2 U	7 U	2 U	3 U	2 U	2 U
ACETONE					2 U			3 U	4 U			8 U	
CARBON DISULFIDE									3 U				
CHLOROFORM		13											
CHLOROBENZENE					0.2 J								

TOTAL MERCURY
MERCURY 0.37

NOTE : LABORATORY NON-DETECTS LEFT BLANK.

DATA VALIDATION QUALIFIERS

J = ANALYTE POSITIVELY IDENTIFIED; CONCENTRATION IS ESTIMATED.

U = ANALYZED, BUT NOT DETECTED ABOVE THE SAMPLE REPORTING LIMIT.